

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Kenneth J. GRUYS  
Timothy A. Mitsky  
Ganesh M. Kishore  
Steven C. Slater  
Stephen R. Padgett  
David M. Stark

Group Art Unit:

Examiner: To be Assigned

Atty. Dkt. No.: 11899.0155.DVUS02  
(MOBT:155-3/KAM)

Serial No.:

Filed: August 30, 2001

For: METHOD OF OPTIMIZING SUBSTRATE  
POOLS AND BIOSYNTHESIS OF POLY-  
 $\beta$ -HYDROXYBUTYRATE-CO-POLY- $\beta$ -  
HYDROXYVALERATE IN BACTERIA  
AND PLANTS

1c978 U.S. PTO  
09/942891  
08/30/01

**INFORMATION DISCLOSURE STATEMENT**

Commissioner for Patents

Washington, D.C. 20231

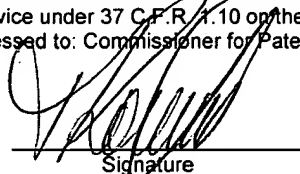
Sir:

CERTIFICATE OF EXPRESS MAILING

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DATE OF DEPOSIT: August 30, 2001

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In compliance with the duty of disclosure under 37 C.F.R. § 1.56, it is respectfully requested that this Information Disclosure Statement be entered and the documents listed on attached Form PTO-1449 be considered by the Examiner and made of record. Copies of the listed documents are not enclosed as they were previously provided to the Examiner.

In accordance with 37 C.F.R. §§ 1.97(g),(h), this Information Disclosure Statement is not to be construed as a representation that a search has been made, and is not to be construed to be an admission that the information cited is, or is considered to be, material to patentability as defined in 37 C.F.R. § 1.56(b).

The present Information Disclosure Statement is being filed with a Request to file a Continued Prosecution Application, and hence is believed to be timely filed in accordance with 37 C.F.R. § 1.97(b). No fees are believed to be due in connection with the filing of this Information Disclosure Statement, however, should any fees under 37 C.F.R. §§ 1.16 to 1.21 be deemed necessary for any reason relating to these materials, the Assistant Commissioner is hereby authorized to deduct said fees from Arnold White & Durkee Deposit Account No. 01-2508/11899.0155.DVUS02/KAM.

Applicant respectfully requests that the listed documents be made of record in the present case.

Respectfully submitted,



Patricia A. Kammerer  
Reg. No. 29,775  
ATTORNEY FOR ASSIGNEE,

Howrey Simon Arnold & White, LLP  
750 Bering Drive  
HOUSTON, TX 77057-2198

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### U.S. Patent Documents

Exam. Init.	Ref. Des.	Document Number	Date	Name	Class	Sub Class	Filing Date of App.
	A1	5,416,011	05/16/95	Hinchee et al.	435	172.3	11/23/93
	A2	5,502,273	03/26/96	Bright et al.	800	205	

### Foreign Patent Documents

Exam. Init.	Ref. Des.	Document Number	Date	Country	Class	Sub Class	Translation Yes/No
	B1	WO 87/02984	05/21/87	WIPO	C07H	21/04	
	B2	WO 91/18995	12/12/91	WIPO	C12P	7/62	
	B3	WO 92/19747	11/12/92	WIPO	C12N	15/82	
	B4	WO 93/06225	04/01/93	WIPO	C12P	7/44	
	B5	WO 94/02620	02/03/94	PCT	C12N	15/82	
	B6	WO 94/11519	05/26/94	WIPO	C12N	15/82	
	B7	WO 95/05472	02/23/95	WIPO	C12N	15/85	
	B8	WO 95/19442	07/20/95	WIPO	C12N	15/60	
	B9	WO 95/27068	10/12/95	PCT	C12N	15/82	
	B10	WO 94/12652	06/09/94	WIPO	C12N	15/82	
	B11	GB 2272904	06/01/94	Great Britain	C12N	15/82	
	B12	DE 1966923	05/15/75	Germany	C12N	15/82	No
	B13	EP 0304293	02/22/89	EPO	C12N	15/82	
	B14	EP 0440165	08/07/91	EPO	C12N	15/82	

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Exam. Init.	Ref. Des.	Citation
	C1	1998 Unpublished laboratory results performed by Steven C. Slater, Monsanto Company, (the results describe cross-hybridization experiments between <i>phbA</i> and <i>bktB</i> DNA sequences).
	C2	Marton, L. et al, "Facile Transformation of Arabidopsis", <i>Plant Cell Rep</i> 10(5):235-239; (1991).
	C3	Database DISSABS AN 96:13604 (1995) Bunnag, Sumonthip (Ph.D.) "Somaclonal Variation, Regeneration and Transformation of Quince ( <i>Cydonia Oblonga</i> Mill.) and Pear ( <i>Pyrus Communis</i> L.)"; - Abstract only.
	C4	Priefert <i>et al.</i> , (1992) "Identification and Molecular Characterization of the Acetyl Coenzyme A Synthetase Gene ( <i>acoE</i> ) of <i>Alcaligenes eutrophus</i> ," <i>Journal of Bacteriology</i> , 174:6590-6599
	C5	Steinbüchel, (1991), "Polyhydroxyalkanoic Acids," <i>Biomaterials</i> , Stockton Press, New York, 125-213
	C6	Fry <i>et al.</i> , (1987) "Transformation of <i>Brassica napus</i> with <i>Agrobacterium tumefaciens</i> based vectors," <i>Plant Cell Reports</i> , 6:321-325
	C7	Mourad <i>et al.</i> , (1995) "L-O-Methylthreonine-Resistant Mutant of <i>Arabidopsis</i> Defective in Isoleucine Feedback Regulation," <i>Plant Physiology</i> , 107:43-52
	C8	Taillon <i>et al.</i> , (1988) "Analysis of the functional domains of biosynthetic threonine deaminase by comparison of the amino acid sequences of three wild-type alleles to the amino acid sequence of biodegradative threonine deaminase," <i>Gene</i> , 63:245-252
	C9	Bisswanger, (1981), "Substrate Specificity of the Pyruvate Dehydrogenase Complex from <i>Escherichia coli</i> ," <i>Journal of Biological Chemistry</i> , 256:815-822
	C10	Nawrath <i>et al.</i> , (1994) "Targeting of the polyhydroxybutyrate biosynthetic pathway to the plastids of <i>Arabidopsis thaliana</i> results in high levels of polymer accumulation," <i>Proceedings of National Academy of Science USA</i> , 91:12760-12764
	C11	Poirier <i>et al.</i> , (1992) "Polyhydroxybutyrate, a Biodegradable Thermoplastic, Produced in Transgenic Plants," <i>Science</i> , 256:520-523

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	C12	Haywood <i>et al.</i> , (1988) "Characterization of two 3-ketothiolases possessing differing substrate specificities in the polyhydroxyalkanoates synthesizing organism <i>Alcaligenes eutrophus</i> ," <i>Federation of European Microbiological Societies</i> , 52:91-96
	C13	Manchak <i>et al.</i> , (1994) "Control of polyhydroxyalkanoates synthesis in <i>Azotobacter vinelandii</i> strain UWD," <i>Microbiology</i> , 140:953-963
	C14	Rhie <i>et al.</i> , (1995) "Role of <i>fadR</i> and <i>atoC</i> (Con) Mutations in Poly(3-Hydroxybutyrate-Co-3-Hydroxyvalerate) Synthesis in Recombinant <i>pha<sup>+</sup> Escherichia coli</i> ," <i>Applied and Environmental Microbiology</i> , 61:2487-2492
	C15	Eisenstein <i>et al.</i> , (1995) "An Expanded Two-State Model Accounts for Homotropic Cooperativity in Biosynthetic Threonine Deaminase from <i>Escherichia coli</i> ," <i>Biochemistry</i> , 34:9403-9412
	C16	Feldberg <i>et al.</i> , (1971) "L-Threonine Deaminase of <i>Rhodospirillum rubrum</i> , Purification and Characterization," <i>European Journal Biochemistry</i> , 21:438-446
	C17	Eisenstein, (1991) "Cloning, Expression, Purification, and Characterization of Biosynthetic Threonine Deaminase from <i>Escherichia coli</i> ," <i>Journal of Biological Chemistry</i> , 266:5801-5807
	C18	Nakamura <i>et al.</i> , (1992) "Biosynthesis of poly(3-hydroxyalkanoate) from amino acids," <i>International Journal of Biological Macromol.</i> , 14:321-325
	C19	Galili, (1995) "Regulation of Lysine and Threonine Synthesis," <i>The Plant Cell</i> , 7:899-906
	C20	Slater <i>et al.</i> , (1988) "Cloning and Expression in <i>Escherichia coli</i> of the <i>Alcaligenes eutrophus</i> H16 Poly- $\beta$ -Hydroxybutyrate Biosynthetic Pathway," <i>Journal of Bacteriology</i> , 170:4431-4436
	C21	Slater <i>et al.</i> , (1992) "Production of Poly-(3-Hydroxybutyrate-Co-3-Hydroxyvalerate) in a Recombinant <i>Escherichia coli</i> Strain," <i>Applied and Environmental Microbiology</i> , 58:1089-1094
	C22	Schubert <i>et al.</i> , (1988) "Cloning of the <i>Alcaligenes eutrophus</i> Genes for Synthesis of Poly- $\beta$ -Hydroxybutyric Acid (PHB) and Synthesis of PHB in <i>Escherichia coli</i> ," <i>Journal of Bacteriology</i> , 170:5837-5847

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	C23	Peoples <i>et al.</i> , (1989) "Poly- $\beta$ -hydroxybutyrate(PHB) Biosynthesis in <i>Alcaligenes eutrophus</i> H16," <i>Journal of Biological Chemistry</i> , 264:15293-15297
	C24	Peoples <i>et al.</i> , (1989) "Poly- $\beta$ -hydroxybutyrate Biosynthesis in <i>Alcaligenes eutrophus</i> H16," <i>Journal of Biological Chemistry</i> , 264:15298-15303
	C25	Barwale <i>et al.</i> , (1986) "Plant regeneration from callus cultures of several soybean genotypes via embryogenesis and organogenesis," <i>Planta</i> , 167:473-481
	C26	Cakmak <i>et al.</i> , (1989) "Effect of Zinc Nutritional Status on Growth, Protein Metabolism and Levels of Indole-3-acetic Acid and other Phytohormones in Bean ( <i>Phaseolus vulgaris</i> L.)," <i>Journal of Experimental Botany</i> , 40:405-412
	C27	Wright <i>et al.</i> , (1986) "Plant regeneration by organogenesis in <i>Glycine max</i> ," <i>Plant Cell Reports</i> , 5:150-154
	C28	Barwale <i>et al.</i> , (1986) "Screening of <i>Glycine max</i> and <i>Glycine soja</i> genotypes for multiple shoot formation at the cotyledonary node," <i>Theoretical Applied Genetics</i> , 72:423-438
	C29	Wright <i>et al.</i> , (1987) "Regeneration of soybean ( <i>Glycine max</i> L. Merr.) from cultured primary leaf tissue," <i>Plant Cell Reports</i> , 6:83-89
	C30	Kim <i>et al.</i> , (1994) "Synergistic effects of proline and inorganic micronutrients and effects of individual micronutrients on soybean ( <i>Glycine max</i> shoot regeneration in vitro," <i>Journal Plant Physiology</i> , 144:726-734
	C31	Yang <i>et al.</i> , (1990) "Comparative studies of organogenesis and plant regeneration in various soybean explants," <i>Plant Science</i> , 72:101-108
	C32	Chee <i>et al.</i> , (1989) "Transformation of soybean ( <i>Glycine max</i> ) by infecting germinating seeds with <i>Agrobacterium tumefaciens</i> ," <i>Plant Physiology</i> , 91:1212-1218
	C33	Christou <i>et al.</i> , (1992) "Prediction of germ-line transformation events in chimeric Ro transgenic soybean plantlets using tissue-specific expression patterns," <i>The Plant Journal</i> , 2:283-290

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	C34	Falco <i>et al.</i> , (1995) "Transgenic canola and soybean seeds with increased lysine," <i>Bio/Technology</i> , 13:477-582
	C35	Finer <i>et al.</i> , (1991) "Transformation of soybean via particle bombardment of embryogenic suspension culture tissue," <i>In Vitro Cell. Dev. Biol.</i> , 27P:175-182
	C36	Hinchee <i>et al.</i> , (1988) "Production of transgenic soybean plants using Agrobacterium-mediated DNA transfer," <i>Bio/Technology</i> , 6:915-922
	C37	McCabe <i>et al.</i> , (1988) "Stable transformation of soybean (Glycine max) by particle acceleration," <i>Bio/Technology</i> , 6:923-926
	C38	Owens <i>et al.</i> , (1985) "Genotypic variability of soybean response to Agrobacterium strains harboring the Ti or Ri plasmids," <i>Plant Physiology</i> , 77:87-94
	C39	Parrott <i>et al.</i> , (1994) "Recovery and evaluation of soybean plants transgenic for a <i>Bacillus thuringiensis</i> var. <i>Kurstaki</i> insecticidal gene," <i>In Vitro Cell. Dev. Biology</i> , 30P:144-149
	C40	Padgett <i>et al.</i> , (1995) "Development, identification and characterization of a glyphosate-tolerant soybean line," <i>Crop Science</i> , 35:1451-1461
	C41	Cheng <i>et al.</i> , (1980) "Plant regeneration from soybean cotyledonary node segments in culture," <i>Plant Science Letters</i> , 19:91-99
	C42	Doi, Yoshiharu, (1995) "Microbial Synthesis, Physical Properties, and Biodegradability of Polyhydroxyalkanoates," <i>Macromol. Symp.</i> 98:585-599.
	C43	Poirier, Yves, <i>et al.</i> , (1995) "Production of Polyhydroxyalkanoates, a Family of Biodegradable Plastics and Elastomers, in Bacteria and Plants," <i>Bio/Technology</i> 13:142-150.
	C44	Poirier, Yves, <i>et al.</i> (1992) "Perspectives on the production of Polyhydroxyalkanoates in plants," <i>FEMS Microbiology Reviews</i> 103:237-246..
	C45	Radke, S.E., <i>et al.</i> (1988) "Transformation of <i>Bassica napus</i> L. using <i>Agrobacterium tumefaciens</i> : developmentally regulated expression of a reintroduced napin gene," <i>Theor. Appl. Genet.</i> 75:685-694.

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	C46	LaRossa, R.A., <i>et al.</i> (1987) "Toxic accumulation of alpha-ketobutyrate caused by inhibition of the branched-chain amino acid biosynthetic enzyme acetolactate synthase in <i>Salmonella typhimurium</i> ," <i>JBC</i> 169:1372-1378.
	C47	Taillon, B.E., <i>et al.</i> (1988) "Analysis of the functional domains of biosynthetic threonine deaminase by comparison of the amino acid sequences of three wild-type alleles to the amino acid sequence of biodegradative threonine deaminase," <i>Gene</i> 3:245-252
	C48	Lawther, R.P., <i>et al.</i> (1987) "The complete nucleotide sequence of the <i>ilvGMEDA</i> operon of <i>Escheria coli</i> K-12," <i>Nucl. Acids Res.</i> 15:2137-2155.
	C49	Colau D. <i>et al.</i> (1987) "Complementation of a threonine dehydratase-deficient <i>Nicotiana plumbaginifolia</i> mutant after <i>Agrobacterium tumefaciens</i> -mediated transfer of the <i>Saccharomyces cerevisiae</i> ILV1 gene", <i>Mol. Cell Biol.</i> 7:2552-2557.
	C50	Hirt, T. <i>et al.</i> (1996) "Telechelic diols from poly (R)-3-hydroxybutyric acid and poly (R)-3-hydroxybutyric-co-poly (R)-3-hydroxyvaleric acid" <i>Macromol. Chem. Phys.</i> 197(5): 1609-1614.
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